

REMARKS

Reconsideration of the present application, as amended, is respectfully requested. Claims 29-35, and 38-50 of the present application are currently pending. Claims 29, 34, 38-40, 42, 47, 49, and 50 have been amended to better reflect the invention, and no new claims have been added. Please note that claim 41 appears to have been omitted from the rejection statement in par. 3 of the previous final office action. Applicants thank the Examiner for the telephone conference held on 10/3/06.

35 U.S.C. § 103 Rejections

The Examiner has rejected claims 29, 30, 31, 33, 34 and 42-50 under 35 U.S.C. § 103(a) as being unpatentable over Japanese Pat. JP05-198512 by Itsudo, et al. (hereinafter, "Itsudo"), in view of U.S. Pat. 5,531,183 by Sivaramakrishnam, et al. (hereinafter, "Sivaramakrishnam"). In light of the amendment, the Examiner's rejections have become moot. Nonetheless, the following remarks regarding the Examiner's rejections and the amended claims may be helpful to expedite prosecution.

Claim 47 relates to a wafer processing apparatus, comprising: a processing chamber defined by a lower wall, an upper wall and side walls extending from the lower wall to the upper wall; a susceptor in the processing chamber on which the wafer can be located so that an upper surface of the wafer faces the upper wall; a manifold component located on the processing chamber and, together with the upper surface of the upper wall, defining a manifold cavity; **a processing gas supply line connected to the manifold component**; a plurality of processing gas supply openings in the upper wall, wherein **a processing gas from the manifold cavity** passes into the processing chamber, wherein the processing gas

comprises **reactive gases** used for processing the wafer, wherein the processing gas supply openings are **non-uniformly distributed** over the upper wall; and an exhaust system comprising an exhaust line connected to the processing chamber, for flowing an exhaust gas from the processing chamber, wherein the exhaust gas comprises reacted gases and depleted processing gas.

In contrast, Itsudo at least fails to disclose or suggest a **processing gas supply line connected to the manifold component for providing processing gas**, nor processing gas supply openings in the upper wall to create a flow of **processing gas** onto the wafer, nor a **processing gas from the manifold cavity** passes into the processing chamber, wherein the processing gas comprises **reactive gases** used for processing the wafer.

The Examiner correctly recognizes that Itsudo fails to disclose or suggest a **processing gas supply line connected to the manifold component**; wherein a **processing gas from the manifold cavity** passes into the processing chamber, and wherein the processing gas comprises **reactive gases** used for processing the wafer. Sivaramakrishnam is introduced in an attempt to remedy the deficiencies of Itsudo by asserting that the use of reactive gases in a showerhead manifold in Sivaramakrishnam would lead the skilled artisan to relocate the reactive gas injection port 23 in Itsudo from the processing chamber to the light source chamber 29 above the processing chamber 21. The rejection further asserts that it would be obvious “to optimize the relative location of the processing gas supply line to optimize the process gas flows as taught by Itsudo.”

Applicants assert that the proposed combination has **no reasonable expectation of success** and renders the apparatus in Itsudo **inoperable**. Examiner’s attention is directed to Itsudo par. [0002], which discloses that a **purging inert gas** is used in the light source chamber 29 to **prevent dirt deposits** on the **perforated plate**. Further, at the end of par.

[0004], Itsudo discloses a light source 11 that emits a wavelength suitable for photochemical reaction of the processing gas. Par. [0005] continues to disclose that a reaction by the light source of suitable wavelength results in a thin film deposit on the substrate being processed. Also disclosed is that the inert gas through the quartz plate serves to prevent adhesion onto the light source and the quartz plate, which is transparent, see par. [0009].

Therefore, if processing gas is introduced into the light source chamber, as proposed in the rejection of the Office Action, then the light source, having a suitable wavelength for photochemical reaction with the processing gas would cause the processing gas in the light source chamber to react and form deposits inside the light source chamber. These deposits would quickly cover the light source and the quartz perforated plate, preventing the light to reach the processing chamber, rendering the apparatus inoperable. MPEP 2143.02 requires a reasonable expectation of success in the modification of the Itsudo apparatus, which is a low temperature photo-assisted CVD apparatus. The reason for the flow of inert gas into the chamber is to isolate the light source from reactants to prevent deposits on the light source. Therefore, Itsudo teaches away from the introduction of **any processing reactants into the light source chamber**, and thus teaches away from the combination and from the claimed invention.

Furthermore, in light of the above remarks, the Examiner's intended use arguments are also defective because MPEP 2144.07 requires that the substitution of a known material based on its suitability for its intended use be satisfied to sustain such an argument. However, the intended use of the inert gas in Itsudo is to specifically keep out and exclude processing reactants, therefore, substituting processing gases for inert gases is unsuitable for the intended use of excluding processing gases from the light source chamber.

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicants assert that claims 29, 30, 31, 33, 34 and 42-50 rejected as unpatentable under 35 U.S.C. § 103(a) over Japanese Pat. JP05-198512 by Itsudo, et al., in view of U.S. Pat. 5,531,183 by Sivaramakrishnam, et al. has been overcome and the claims are now in condition for allowance.

The Examiner has rejected claims 32, 35, 38, 39, and 40 under 35 U.S.C. § 103(a) as being unpatentable over Japanese Pat. JP05-198512 by Itsudo, et al. (hereinafter, "Itsudo") and U.S. Pat. 5,531,183 by Sivaramakrishnam, et al. (hereinafter, "Sivaramakrishnam") in view of U.S. Pat. 6,444,039 by Nguyen (hereinafter, "Nguyen"). In light of the amendment, the Examiner's rejections have become moot. Nonetheless, the following remarks regarding the Examiner's rejections and the amended claims may be helpful to expedite prosecution.

Nguyen is introduced to disclose a gas distribution plate having angular displacement. However, Nguyen fails to remedy the deficiencies discussed above. Nguyen fails to disclose or suggest a **processing gas supply line connected to the manifold component**; a plurality of processing gas supply openings in the upper wall, wherein a **processing gas from the manifold cavity** passes into the processing chamber, wherein the processing gas comprises **reactive gases** used for processing the wafer; nor wherein the processing gas supply openings are **non-uniformly distributed** over the upper wall. Similarly, as discussed above, Itsudo

teaches away from the introduction of processing gases into the light source chamber, and thus would not be combinable with Nguyen.

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicants assert that claims 32, 35, 38, 39, and 40 rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese Pat. JP05-198512 by Itsudo, et al. and U.S. Pat. 5,531,183 by Sivaramakrishnam, et al. in view of U.S. Pat. 6,444,039 by Nguyen are in condition for allowance.

CONCLUSION

Applicant respectfully submits that the present application is in condition for allowance. If the Examiner believes a telephone conference would expedite or assist in the allowance of the present application, the Examiner is invited to call Neal Berezny at (408) 962-7563. Applicants thank the Examiner for the telephone conference on 10/3/06.

Pursuant to 37 C.F.R. 1.136(a)(3), applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. 1.16 and 1.17, to Deposit Account No. 02-2666.

Respectfully submitted,

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Date: October 5, 2006

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